

STUDY MODULE DESCRIPTION FORM		
Name of the module/subject Engineering Drawing		Code 1010601311010640054
Field of study Transport	Profile of study (general academic, practical) (brak)	Year /Semester 1 / 1
Elective path/specialty -	Subject offered in: Polish	Course (compulsory, elective) obligatory
Cycle of study: First-cycle studies	Form of study (full-time, part-time) full-time	
No. of hours Lecture: 1 Classes: - Laboratory: - Project/seminars: 1		No. of credits 5
Status of the course in the study program (Basic, major, other) (brak)		(university-wide, from another field) (brak)
Education areas and fields of science and art technical sciences Technical sciences		ECTS distribution (number and %) 5 100% 5 100%
Responsible for subject / lecturer: Ph. D. Maciej Berdychowski email: Maciej.Berdychowski@put.poznan.pl tel. 61 224 4514 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań		Responsible for subject / lecturer: Ph. D. Dominik Wilczyński email: dominik.wilczynski@put.poznan.pl tel. 61 224-4512 Working Machines and Transportation Piotrowo 3 Street, 60-965 Poznań
Prerequisites in terms of knowledge, skills and social competencies:		
1	Knowledge	Fundamental knowledge on geometry and stereometry. Fundamental knowledge on theory of machines and machine parts.
2	Skills	Problem solving skills with the use of the knowledge and skills of information acquisition from the selected sources.
3	Social competencies	Understanding the necessity of enlarging the competences, willingness to take a cooperation in a team.
Assumptions and objectives of the course: Mastership of basic principles of image construction of spatial objects on the plane. Training of spatial imagination. Learning the methods and principles of engineering drawing. Practical skills of preparing the technical documentation. Skills of "reading" the engineering drawing.		
Study outcomes and reference to the educational results for a field of study		
Knowledge:		
1. knows the basic techniques, methods and tools used in the process of solving transport tasks, mainly of an engineering nature - [T1A_W07]		
Skills:		
1. is able to obtain information from various sources, including literature and databases, both in Polish and in English, appropriate to integrate them, make their interpretation and critical evaluation, draw conclusions, and fully justify the opinions they formulate - [T1A_U01]		
2. is able to properly use information and communication techniques, applicable at various stages of transport undertakings - [T1A_U02]		
Social competencies:		
1. is aware of the social role of a technical university graduate, in particular, understands the need to formulate and communicate to the public, in an appropriate form, information and opinions on engineering activities, technical achievements, and the legacy and traditions of the profession of transport engineer - [T1A_K04]		
Assessment methods of study outcomes		
Written exam, project.		

Course description		
<ol style="list-style-type: none"> 1. Introduction, standardization in engineering drawing. 2. Projection of 3D objects on the plane of the drawing. 3. Presentation of object interior with the use of sectional views, types of sectional views. 4. Presentation of object cross-section with the use of revolved section. 5. The application of geometrical constructions for drawing the objects. 6. Lines of intersection of typical solids. 7. Dimensioning. 8. Tolerances for production drawings and fits for assembly drawings. 9. Geometrical Product Specification. 10. Production drawings for shaft and hub. Splines. 11. Production drawings for gear wheels. 12. Assembly drawings of screw joints and splined connections. 13. Simplifications for rolling bearings drawings. 14. The principles of drawing welds and welded joints. 15. The design of bearing modulus. 16. The analysis ("reading") of assembly drawings. 		
Basic bibliography:		
<ol style="list-style-type: none"> 1. Dobrzański T., Rysunek techniczny maszynowy, WNT, W-wa 1997. 2. Lewandowski T., Rysunek techniczny dla mechaników, WSiP, W-wa 2009. 3. Bober A, Dudziak M., Zapis konstrukcji, PWN, W-wa 1999. 4. Jankowski W. Geometria Wykreślna. Wydawnictwo P.P. 1999 r. 5. Korczak J., Prętki Cz. Przekroje i rozwinięcia powierzchni walcowych i stożkowych. Wydawnictwo P.P. 1999 r. 6. Loska J., Zbiór zadań ćwiczeniowych z rysunku technicznego, Wyd. Politechniki Śląskiej, Gliwice 1982 		
Additional bibliography:		
<ol style="list-style-type: none"> 1. Freuch T.E., Vierck C.I., Fundamentals of engineering drawing, McGraw-Hill Book Co., New York 1960. 2. Freuch T.E., Vierck C.I., Engineering drawing and graphic technology, McGraw-Hill Book Co., New York 1972. 		
Result of average student's workload		
Activity	Time (working hours)	
1. Participation in lectures	15	
2. Memorizing the knowledge from lectures	15	
3. Consultations concerning the knowledge from lectures	6	
4. Preparation to exam	10	
5. Participation in exam	2	
6. Participation in project classes	15	
7. Preparation to project classes	15	
8. Elaboration of project	15	
9. Consultations concerning the knowledge from project classes	15	
10. Preparation to project classes exam	15	
11. Participation in project classes exam	2	
Student's workload		
Source of workload	hours	ECTS
Total workload	125	5
Contact hours	55	2
Practical activities	77	3